

MTF Measurement System Performance Specification

56-9002-14

Item No.	Item	Specification
1	Multispectral Light Source	<p>Multiband light sources to cover from visible thru infrared spectral bands. Automatically switchable between VIS-SWIR wavebands and MWIR-LWIR wavebands.</p> <ul style="list-style-type: none"> - Integrated touchscreen display and control panel - High speed, motorized target wheel with at least 16 target positions with pinholes and slit targets - Automatic shutter mechanism for background corrections - Built in chopper wheel (for use with lock-in amplifier) - 3-5um and 8-12um bandpass filter
2	Reflective Collimator	<p>Minimum 200mm diameter off-axis parabolic reflective collimator (with no obscurations)</p> <ul style="list-style-type: none"> - ~ 2000mm effective focal length collimator - Minimum $\lambda/8$ surface accuracy (tested at HeNe in a mounted condition) - High stability mount and cell highly desirable - Hardware to aid in alignment verification - Use $\lambda/10$ or better fold mirror to reduce the overall collimator size
3	Motion Control System	<p>Motion control components including;</p> <ul style="list-style-type: none"> - DSP-based motion control card - Power amplifiers for stepper and servo motors - Linear and rotary encoder electronics
4	Computer Controller	<p>Optical Testing Software & Computer</p> <ul style="list-style-type: none"> - Includes the ability to analyze traditional and scanned images - User Manual

Item No.	Item	Specification
5	Visible/NIR Image Analyzer	Real-time video MTF measurements. <ul style="list-style-type: none"> - Spectral sensitivity from ~400 – 1000nm - Switchable between camera viewing and direct operator viewing modes - High sensitivity, minimum 12-bit video output
6	SWIR/MWIR Scanning Image Analyzer	For measurements of short-wave and mid-wave infrared testing. <ul style="list-style-type: none"> - InSb detector with 1.0 – 5.5um sensitivity - Liquid N2 cooled with integrated temperature sensor - Drive electronics for rotating the scanning aperture
7	LWIR Scanning Image Analyzer	For measurements of long-wave infrared testing. <ul style="list-style-type: none"> - HgCdTe detector with 7.0 – 12.5um sensitivity - Liquid N2 cooled with integrated temperature sensor - Drive electronics for rotating the scanning aperture
8	Image Analyzer Motorized Mount	High Resolution stage mount for XYZ translation of the various (VIS, NIR, SWIR, MWIR & LWIR) image analyzer modules <ul style="list-style-type: none"> - Enables automated XYZ translation of the image analyzer for thru-focus and off-axis measurements. - Minimum 50mm travel for each motorized axis (XYZ) - High resolution 0.1um linear encoders on each axis (XYZ)
9	Lens Rotary Platform	Used to provide azimuth rotation of the lens and image analyzers to perform off-axis measurement positions. <ul style="list-style-type: none"> - Minimum 290° total angular range - Better than 0.25 arc second resolution angular position encoder - Must support up to 80Kg load capacity (at center of rotation)
10	Scanning Electronics System	Electronic motion control and signal processing for the scanning image analyzers (SWIR, MWIR, and LWIR). <ul style="list-style-type: none"> - Hardware to prevent damage to liquid N2 cooled detectors. - High dynamic range lock-in amplifier with voltage and current inputs
11	On-site installation	On-site installation and alignment service.
12	Audit Lenses	Visible, MWIR and LWIR lenses to periodically verify system performance